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| 10/026,735 | 12/27/2001 | Blair T. Mackiewich | A363 0019 GNM/bds | 1957 |

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| EXAMINER | |
|---|---|
| WONG, WARNER | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2616 | |

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/026,735 | MACKIEWICH ET AL. | |
| | Examiner | Art Unit | |
| | Warner Wong | 2616 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on *17 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Objections*

1. The following claims 14 & 16 are objected to because of the following informalities:

(a) claims 14 & 16, lines 2-3: the limitation "a second data frame from a second address" should be grammatically corrected as "a second data frame with a second address".

(b) claims 12 & 17, lines 2-3: the limitation "a third data frame from the address" should be grammatically corrected as "a third data frame with the address".

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1-4 and 8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerstein (US 6,111,874) in view of Dobbins (US 2005/0083949).

**Regarding claim 1**, Kerstein teaches a method, comprising:

providing a bridge device (having a plurality of ports and a shared forwarding database (fig. 1 & abstract, switch with multiple ports and shared address table);

creating an entry in the shared forwarding database, the entry indexed by an address (fig. 8 & col. 8, lines 65-67, table with entries indexed by an addresses).

receiving, at the bridge device, a data frame addressed to the address (col. 8, lines 65-66, receiving a frame with its respective address).

reading source routing data from the data frame, the source routing data independent of the address (col. 9, lines 48-53, a frame's VLAN tag (source routing data) is independent of the SA/DA (address));

identifying a port, from among the plurality of ports (col. 9, lines 7-13, port vector contains destination port);

sending the data frame to the identified port (col. 9, lines 10-13, data frame forwarded to destination port).

Kerstein fails to teach:

the entry in the table indicating that data addressed to the address should be source routed;

determining that the data frame requires source routing based on the entry in the shared forwarding database;

identifying a port based at least in part on the source routing data;

Dobbins teaches:

the entry in the table indicating that data addressed to the address should be source routed (paragraphs 37-38, each connecting switch has a table mapping source-destination pair for a source-routed path).

determining that the data frame requires source routing based on the database entry (paragraph 38, the source-destination mapping entry determines subsequent data frames to be source-routed).

identifying a port based at least in part on the source routing data (paragraphs 117 & 119, using VLAN mappings to verify or place each user in the correct port).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate source routing for routing data as in Dobbins for the data routing method of Kerstein.

The motivation for combining the teaching is that it enables individual switches to autonomously know the topology and route data (paragraph 31).

**Regarding claim 2**, Kerstein further teaches that the data frame comprises a VLAN tag and reading the source routing data from the data frame comprises reading the VLAN tag (col. 9, lines 48-53, reading a frame's VLAN tag).

**Regarding claim 3**, Kerstein further teaches that each of the plurality of ports is associated with a port VLAN identifier (abstract & col. 8, lines 53-56, each forwarding port is associated with a VLAN index (identifier)).

**Regarding claim 4**, Kerstein further teaches that the address comprises a MAC address of a device.

Kerstein fails to teach: determining that the data frame requires source routing comprises looking up the MAC address in the shared forwarding database.

Dobbins teaches: determining that the data frame requires source routing comprises looking up the MAC address in the shared forwarding database (paragraphs

37-38, source routing is based on each switch's source-destination MAC address pair mappings).

**Regarding claim 8**, Kerstein and Dobbins combined teaches identifying the port, from among the plurality of ports, based at least in part on the source routing data (Dobbins, paragraphs 117 & 119, using VLAN mappings to verify or place each users in the correct port).

Kerstein further teaches: reading the VLAN tag comprises reading a first VID specified in the VLAN tag, and identifying the port associated with the port VLAN identifier equal to the first VID (col. 9, lines 55-57 & col. 10, lines 1-2, receiving frame's VLAN tag containing VLAN ID (first VID) is used for matching the corresponding VLAN index (identifier) and identifying the associated port).

**Regarding claim 9**, Kerstein further teaches: receiving a second data frame at the identified port of the bridge device and tagging the second data frame with a second VLAN tag, the second VLAN tag comprising a second VID equal to the port VLAN identifier associated with the identified port (col. 9, lines 55-57 & col. 10, lines 1-2, receiving another (second) frame at that in-port, the frame with (second) VLAN tag containing a VLAN ID (second VID) corresponding to the same VLAN index (identifier) which maps to the identified port).

**Regarding claim 10**, Kerstein and Dobbins combined teaches identifying the port, from among the plurality of ports, based at least in part on the source routing data (Dobbins, paragraphs 117 & 119, using VLAN mappings to verify or place each users in the correct port).

Kerstein further teaches: reading the VLAN tag comprises reading a first VID specified in the VLAN tag, and identifying the port associated with the port VLAN identifier equal to the first VID according to a correspondence maintained in the bridge (col. 9, lines 55-57 & col. 10, lines 1-2, receiving frame's VLAN tag containing VLAN ID (first VID) is used for matching the corresponding VLAN index (identifier) according to the mappings (correspondence) and identifying the associated port).

**Regarding claim 11**, Kerstein further teaches: receiving a second data frame at the identified port of the bridge device and tagging the second data frame with a second VLAN tag, the second VLAN tag comprising a second VID corresponding to the port VLAN identifier associated with the identified port according to the correspondence maintained in the bridge (col. 9, lines 55-57 & col. 10, lines 1-2, receiving another (second) frame at that in-port, the frame with (second) VLAN tag containing a VLAN ID (second VID) corresponding to the same VLAN index (identifier) according to the mappings (correspondence) which maps to the identified port).

**Regarding claim 12**, Kerstein further teaches:

receiving, at the bridge device, a third data frame from the address (col. 8, lines 65-66, receiving a (third) frame with the same address).

using the address to look up the entry in the shared forwarding database (fig. 13, step 306, using SA (address) to look up a matching entry in the shared address table);

determining that the shared forwarding database should not be dynamically updated in response to receiving the third data frame based on the entry in the shared

forwarding database (fig. 13, step 306, based on the entry found for the received (third) frame, the address table need not be (dynamically) updated with a new entry).

Kerstein fails to teach that the table entry indicating that data addressed to the address should be source routed.

Dobbins teaches that the table entry indicating that data addressed to the address should be source routed (paragraphs 37-38, each mapping corresponds a source-destination pair with a source-routed path).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate source routing for routing data as in Dobbins for the data routing method of Kerstein.

The motivation for combining the teaching is that it enables individual switches to autonomously know the topology and route data (paragraph 31).

**Regarding claim 13**, Kerstein teaches a bridge comprising:

a plurality of bridge ports (fig. 1 & abstract, switch with plural ports);

a shared forwarding database, the shared forwarding database comprising a plurality of first records, each first record associating an address with one of the bridge ports (fig. 8 & col. 8, lines 58 to col. 9, line 10, shared address table where records associate an address to a forwarding port vector), and

the bridge being configured to respond to receipt of a data frame address to the corresponding second address by:

reading source routing data from the data frame, the source routing information independent of the address (col. 9, lines 48-53, a frame's VLAN tag (source routing data) is independent of the SA/DA (address));

forwarding the data frame to the identified port (col. 9, lines 10-13, data frame forwarded to destination port).

Kerstein fails to teach:

at least one second record, the at least one second record associating a corresponding second address with information indicating that data sent to the corresponding second address requires source routing;

determining from the at least one second record that the data frame requires source routing.

Dobbins teaches:

at least one second record, the at least one second record associating a corresponding second address with information indicating that data sent to the corresponding second address requires source routing (paragraphs 37-38, each of mappings (second record entries) associate source-destination MAC (second) address to a source route).

determining from the at least one second record that the data frame requires source routing (paragraphs 37-38, for a received frame, there exists a mapping (second record entry) to associate the source-destination MAC (second) address pair to a source route).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate source routing for routing data as in Dobbins for the data routing method of Kerstein.

The motivation for combining the teaching is that it enables individual switches to autonomously know the topology and route data (paragraph 31).

**Regarding claim 14**, Kerstein teaches:

receiving, a the bridge device, a second data frame from a second address at a second one of the plurality of ports (fig. 13, step 300 receiving another (second) frame);

dynamically updating the shared forwarding database in response to receiving the second data frame (fig. 13, dynamically updating the shared address table), wherein dynamically updating the shared forwarding database comprises:

using the second address to look up a second entry in the shared forwarding database, the second entry indexed by the second address;

if the second entry is present in the shared forwarding database, ensuring that the second entry indicates that data address to the second address should be routed to the second one of the plurality of ports (fig. 13, steps 302, 306 & 320, found shared table entry which identifies frame's addresses to a forwarding port vector).

if the second entry is not present in the shared forwarding database, creating the second entry indicates that data addressed to the second address should be routed to the second one of the plurality of ports (fig. 13, step 314 or 316, creates new entry with an forwarding port vector (second port) if SA (second address) is not in address table).

**Regarding claim 15**, Kerstein teaches:

reading a destination address from the second data frame (col. 9, lines 50-52, DA (destination address) read from frame);

using the destination address to look up a third entry in the shared forwarding database the third entry indexed by the destination address and the third entry indicating that data addressed to the destination address should be routed to a third one of the plurality of ports (fig. 7, step 318 & col. 10,lines 1-2, looking up a corresponding (third) entry in address table which identifies a corresponding (third) forwarding port vector (port)),

routing the second data frame to the third one of the plurality of ports (col. 10, lines 3-7);

**Regarding claim 16**, Kerstein teaches:

receiving, a the bridge device, a second data frame from a second address at a second one of the plurality of ports (fig. 13, step 300 receiving another (second) frame);

dynamically updating the shared forwarding database in response to receiving the second data frame (fig. 13, dynamically updating the shared address table), wherein dynamically updating the shared forwarding database comprises:

using the second address to look up a second entry in the shared forwarding database, the second entry indexed by the second address;

if the second entry is present in the shared forwarding database, ensuring that the second entry indicates that data address to the second address should be routed to the second one of the plurality of ports (fig. 13, steps 302, 306 & 320, found shared table entry which identifies frame's addresses to a forwarding port vector).

if the second entry is not present in the shared forwarding database, creating the second entry indicates that data addressed to the second address should be routed to the second one of the plurality of ports (fig. 13, step 314 or 316, creates new entry with an forwarding port vector (second port) if SA (second address) is not in address table).

**Regarding claim 17**, Kerstein further teaches:

receiving, at the bridge device, a third data frame from the address (col. 8, lines 65-66, receiving a (third) frame with the same address).

using the address to look up the entry in the shared forwarding database (fig. 13, step 306, using SA (address) to look up a matching entry in the shared address table);

determining that the shared forwarding database should not be dynamically updated in response to receiving the third data frame based on the entry in the shared forwarding database (fig. 13, step 306, based on the entry found for the received (third) frame, the address table need not be (dynamically) updated with a new entry).

Kerstein fails to teach that the table entry indicating that data addressed to the address should be source routed.

Dobbins teaches that the table entry indicating that data addressed to the address should be source routed (paragraphs 37-38, each mapping corresponds a source-destination pair with a source-routed path).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate source routing for routing data as in Dobbins for the data routing method of Kerstein.

The motivation for combining the teaching is that it enables individual switches to autonomously know the topology and route data (paragraph 31).

**Regarding claim 18**, Kerstein teaches:

reading a destination address from the second data frame (col. 9, lines 50-52, DA (destination address) read from frame);

using the destination address to look up a third entry in the shared forwarding database the third entry indexed by the destination address and the third entry indicating that data addressed to the destination address should be routed to a third one of the plurality of ports (fig. 7, step 318 & col. 10,lines 1-2, looking up a corresponding (third) entry in address table which identifies a corresponding (third) forwarding port vector (port)),

routing the second data frame to the third one of the plurality of ports (col. 10, lines 3-7);

3. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerstein in view of Dobbins as applied to claim 1 above, and further in view of Klaus.

Kerstein fails to teach applying one or more inbound rules to the data frame before determining that the data frame requires source routing.

Klaus teaches applying one or more inbound rules to the data frame before determining that the data frame requires source routing (col. 3, line 66 to col. 4, line 24, router that uses an inbound rule allowing source routed messages that is applied to all frames in the network before source routing needs to be applied).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to apply inbound rules to incoming frames in the method of Kerstein.

The motivation for combining the teachings is that it prevents hacking (Klaus, col. 3, lines 66-67).

4. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerstein in view of Dobbins and Klaus as applied to claim 5 above, and further in view of Weaver.

Kerstein and Dobbins combined teach identifying the port, from among a plurality of ports, based at least in part on the source routing data (Dobbins, paragraphs 117 & 119, using VLAN mappings to verify or place each users in the correct port).

However, Kerstein fails to teach applying one or more inbound rules to the data frames after identifying the port.

Weaver teaches applying one or more inbound rules to the data frames after identifying the port (col. 2, lines 28-29, using outbound traffic filters (rules) in a network device).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use outbound rules in the method of Kerstein.

The motivation for combining the teaching is that it ensures a timely delivery of critical data (Weaver, col. 1, lines 38-41).

5. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerstein in view of Dobbins as applied to claim 1 above, and further in view of Weaver.

Kerstein and Dobbins combined teach identifying the port, from among a plurality of ports, based at least in part on the source routing data (Dobbins, paragraphs 117 & 119, using VLAN mappings to verify or place each users in the correct port).

Kerstein fails to teach applying one or more inbound rules to the data frames after identifying the port.

Weaver teaches applying one or more inbound rules to the data frames after identifying the port (col. 2, lines 28-29, using outbound traffic filters (rules) in a network device).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to use outbound rules in the method of Kerstein.
The motivation for combining the teaching is that it ensures a timely delivery of critical data (Weaver, col. 1, lines 38-41).

### *Response to Arguments*

6. Applicant's arguments with respect to claims 1-11 and 13 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 6:30AM - 3:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Warner Wong
Examiner WW
Art Unit 2616

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